

**BARNWELL DISPOSAL FACILITY
LONG-TERM CARE FUND ASSESSMENT
(JULY 2006)**

PREPARED BY: Ben Smith DATE: 8-29-06
Ben Smith

REVIEWED BY: Vernon Ichimura DATE: 8/29/06
Vernon Ichimura

APPROVED BY: Bill House DATE: 8/30/06
Bill House

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INTRODUCTION

The Barnwell Disposal Facility has two separate financial assurance mechanisms: the Decommissioning Trust Fund for closure and decommissioning of the Site and the Long-Term Care Fund for maintenance and monitoring during the institutional control period. Assessment of the Long-Term Care Fund, dedicated to maintenance and monitoring of the buried radioactive waste, is provided in this report, effective July 1, 2006. The assessment includes a history of long-term care funding and a projection of Long-Term Care Fund balance to the end of institutional control. Key assumptions and issues are provided to explain the basis for, and uncertainty associated with, projection of fund balance. With the exception of recent financial commitments by the South Carolina General Assembly, assumptions are taken from the 2005 Closure Plan and updated appropriately. The primary purpose of the Long-Term Care Fund is to provide the custodial agency with resources to pay for the maintenance and monitoring of the Barnwell Site during the institutional control period.

BACKGROUND

Chem-Nuclear Systems (CNS) entered into a 99-year Lease Agreement with the State of South Carolina on April 21, 1971, to lease a 17.2 acre plot of land, previously deeded to the State by Chem-Nuclear for the purpose of radioactive waste burial. Under this agreement, Chem-Nuclear agreed to operate in accordance with its license application, the conditions of its License 097 and the requirements of the AEC (now NRC) and the State. The agreement also established the perpetual care and maintenance fund for the long-term care of the site. Chem-Nuclear agreed to pay eight cents into the fund for every cubic foot of waste received for burial.

A second Lease Agreement was executed on April 6, 1976, which included, among other changes, increasing the CNS payment to the Long-Term Care Fund to sixteen cents per cubic foot. The lease agreement and the contribution rate have been amended seven more times as listed below: fifty-five cents per cubic foot from September 1, 1979, through April 5, 1980; seventy-five cents per cubic foot from April 6, 1980, through April 5, 1981; one dollar per cubic

foot from April 6, 1981, through April 5, 1982; two dollars per cubic foot from April 6, 1982, through April 5, 1983; two and one quarter dollars per cubic foot from April 6, 1983, through April 5, 1984; and two and one half dollars per cubic foot from April 6, 1984, through April 5, 1985. The current payment rate of \$2.80 per cubic foot was set on April 5, 1985.

Periodic review of the Long-Term Care Fund balance and adequacy in closure plans began with the 1985 Closure Plan. According to the data summarized in the table below, the fund grew from approximately \$18 million in 1985 to nearly \$106 million in 2001.

LONG-TERM CARE FUND BALANCE		
DATE	BALANCE	SOURCE
05-31-85	\$18.1 million	1985 Closure Plan
12-29-89	\$40.8 million	1990 Closure Plan
11-27-91	\$52.0 million	1990 Closure Plan Revision
11-30-94	\$66.9 million	1994 Closure Plan
03-31-99	\$91.6 million	1999 Closure Plan
07-01-00	\$95.8 million	2000 Closure Plan
07-01-01	\$105.8 million	SC State Treasurer Report
07-01-05	\$24.3 million	2005 Closure Plan

In FYs 2002, 2003 and 2004, South Carolina budget appropriations were funded by the transfer of monies from the Long-Term Care Fund to the South Carolina General Fund. These transfers were part of the yearly budgets approved by the General Assembly and signed by the Governor. Amounts transferred from the Long-Term Care Fund were the following: FY 2002 - \$39,500,000 FY 2003 - \$49,307,864 and FY 2004 - \$ 2,423,565. Removal of these funds led to the 7-1-2005 Long-Term Care Fund balance of approximately \$24.3 million, which was noted as insufficient in the 2005 Closure Plan. Prior to these disbursements, long-term care funding was considered sufficient.

In FY 2005, South Carolina committed to replenishing \$20,472,134 to the Long-Term Care Fund in quarterly installments. This additional funding was included in the Long-Term Care Fund projections in the 2005 Closure Plan. As of July 1, 2006, all but \$5,118,033 of the \$20.4 million commitment has been placed in the fund as well as \$4,527,866 appropriated through separate authorization (Act 179, Reserve Fund). In 2006, South Carolina committed to replenishing an

additional \$64,634,813. This payment, along with the last installment of the \$20.4 million, is expected before the end of 2006.

LONG-TERM CARE FUND PROJECTION

The 2005 Closure Plan contains a projection of the Long-Term Care Fund, and assumptions concerning the Long-Term Care Fund in the 2005 Closure Plan remain valid. However, this report includes updated assumptions reflecting commitments to replenish the fund. The assumptions used for the Long-Term Care Fund scenario in this document are provided below. It should be noted that financial projections of this type are highly sensitive to assumed conditions. The following assumptions are taken from the 2005 Closure Plan and have been updated with current information as appropriate.

INITIAL FUND BALANCE/RE-PAYMENT

- ☐ The beginning fund balance of approximately \$50.75 million as of June 30, 2006 is used.
- ☐ The addition of \$5,118,033 ($\frac{1}{4}$ of original \$20,472,134 repayment) repayment to the Long-Term Care Fund from the South Carolina Department of Revenue in accordance with South Carolina FY 2005/2006 Budget, Part 1B, Section 73.17 (SR: Increased Enforcement Collections). This payment represents the final repayment under this authorization, expected in 2006.
- ☐ The addition of \$64,634,813 repayment to the Long-Term Care Fund from the SC Department of Revenue in accordance with SC FY 2006/2007 Budget, Part 1B, Section 73.14 (SR: Unobligated FY 05/06 General Fund Revenue). Repayment is assumed to occur in 2006.

- ❑ Long-Term Care Fund interest is assumed at 2%, which is the projected “real” long-term growth of the fund after inflation.

CURRENT OPERATIONS PERIOD

- ❑ Two years of continued operations at the maximum waste volumes allowed by the Atlantic Compact Law (40,000 ft³ and 35,000 ft³) assuming the Long-Term Care Fund contribution rate is \$2.80 per cubic foot.

PHASE I CLOSURE/POST-CLOSURE

- ❑ Beginning in FY 2008/2009 concurrent with in-region operations, fifteen months of Phase I Closure period will be paid from the Decommissioning Trust Fund. The July 1, 2006, Decommissioning Trust Fund balance (\$20,187,819) is sufficient to pay for the 15 months of closure activities and routine site maintenance and monitoring costs. After completion of closure activities, the cost of Phase II Closure, \$2,258,500, (Table 6-21, 2005 Closure Plan) is reserved from the remaining Decommissioning Trust Fund balance, leaving a Decommissioning Trust Fund balance of \$4,198,828.
- ❑ At 3 months into FY 2009/2010 there will be a transition from Phase I Closure to the five year Phase I Post-Closure period. The \$2,930,256 annual cost of post-closure maintenance and monitoring (Table 8-10, 2005 Closure Plan) will be withdrawn first from remaining decommissioning funds (\$4,198,828 based on the Decommissioning Trust Fund evaluation provided in Appendix 1) and then from the Long-Term Care Fund. The post-closure cost over the remaining 9 months of FY 2009/2010 will be expended from the Decommissioning Trust Fund. During FY 2010/2011, post-closure costs will be expended from the Long-Term Care Fund after the remaining Decommissioning Trust Fund balance is depleted. The amount expended from the Long-Term Care Fund is estimated at \$929,120.

IN-REGION OPERATIONS

- ❑ Based on the FY 2006/2007 LCOP, the site is projected to operate at a deficit in FY 2008/2009. The deficit amount may require a one-time payment from the Long-Term Care Fund of up to approximately \$3.65 million. No additional years of deficit are assumed because S.C. Code Ann. §48-46-40(B) (7)(a)(1976) requires the site operator to propose a plan for “suspended operations” if it appears that waste receipts will not cover site operator’s allowable costs and operating margin.
- ❑ The expected waste volume during the in-region operating period is 8,000 ft³ per year for 30 years assuming the Long-Term Care Fund contribution rate is \$2.80/ft³.
- ❑ Following the post-closure period, approximately 24 years (comprising the remaining in-region operations period) of long-term care monitoring and maintenance expense for areas closed during the Phase I Closure period. An annual expense of \$1,448,079 (Routine Costs from Table 8-11, 2005 Closure Plan less the taxes, fees and insurance paid from operating costs) will be withdrawn from the Long-Term Care Fund.

PHASE II CLOSURE/POST-CLOSURE

- ❑ During the one year of Phase II Closure, the Long-Term Care Fund pays for the routine long-term care activities listed in Table 8-11 of the 2005 Closure Plan (\$2,753,671). Decommissioning activity costs are paid from the Decommissioning Trust Fund.
- ❑ Five years of Phase II Post-Closure observation costs in the amount of \$2,930,256 annually (Table 8-10, 2005 Closure Plan) will be withdrawn from the Long-Term Care Fund.

INSTITUTIONAL CONTROL

- ❑ After Phase II Post-Closure, one hundred years of institutional control at an annual routine cost of approximately \$2.75 million, with non-routine costs included at intervals defined in Table 8-11, 2005 Closure Plan.
- ❑ The Long-Term Care Fund pays for potential remedial actions described in the 2005 Closure Plan, including (1) \$30 million over the first 20 years of institutional control for pump-and-treat remediation and (2) \$18.75 million over the first 10 years for replacement of enhanced cap on all trenches. For purpose of financial assessment, these actions are conservatively assumed to start at the beginning of institutional control. This amounts to \$6.13 million (including \$2.75 million annually for routine maintenance and monitoring) each year during the first 10 years of Long-Term Care and \$4.25 million annually during the subsequent 10 years.

A spreadsheet was set up with these assumptions and run for the entire timeframe discussed. Figure 2 shows a graphic projection of Long-Term Care Fund balance based on this report's assumptions. A detailed supporting spreadsheet printout is provided in Appendix 2. The Long-Term Care Fund evaluation depends on several key assumptions, which impact conclusions about long-term care funding. Key issues affecting the results include the following:

- (1) Rate of return for Long-Term Care Fund investments.
- (2) Need for and cost of nuclear liability insurance for State of South Carolina.
- (3) Rate of reduction (if any) in monitoring and maintenance during institutional control.
- (4) Level of security required during institutional control.
- (5) Actual length of the institutional control period for the closed site.

- (6) Actual amount of site operations cost deficit made up from the Long-Term Care Fund.
- (7) Potential for and extent of any significant remedial actions.

CONCLUSION

The results shown in Figure 2 and Appendix 2 indicate a remaining balance of approximately \$14 million at the end of the institutional control period. Given the conservative assumptions in this report, the Long-Term Care Fund balance is considered sufficient.

Figure 1 Barnwell Disposal Facility Projected Timeline (Revised from 2005 Closure Plan)

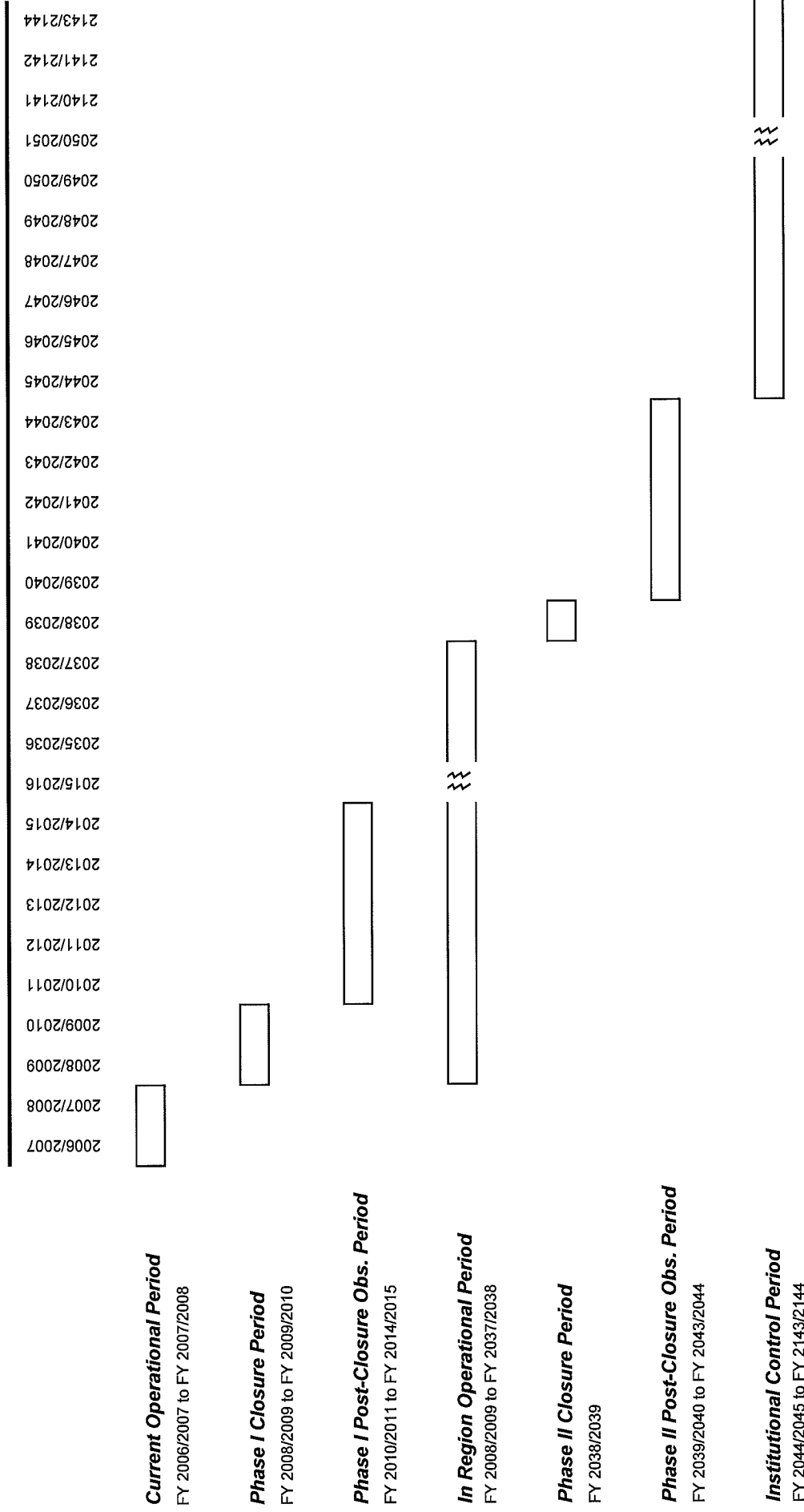


Figure 2

Long-Term Care Fund Balance Projection (July 1, 2006)

